

The Ultimate Installation Guide for Push-Fit & Threaded Sonic Logging Tubes

Field Operating Manual for Cross-Hole Sonic Logging (CSL) Pipe Jointing, Securing, and Pressure Testing

1. Structural Overview & Connection Mechanisms

Cross-Hole Sonic Logging (CSL) requires sonic logging tubes to remain perfectly clear, straight, and water-tight during concrete pouring. Any slurry leakage or joint dislodgement will block the ultrasonic probes, causing false structural failure alerts. This field guide provides clear instructions for on-site crew execution.

2. Step-by-Step Jointing Connection Procedures

TYPE A: Hydraulic Push-Fit Jointing (钳压式)

STEP 1.1: O-Ring Inspection & Pre-Insertion Alignment

Check the rubber gasket. Push the male end straight into the female bell socket.

Ensure the EPDM rubber O-ring is sitting flush inside the socket groove. Align the two tubes axially. Push manually until the pipe end bottoms out completely against the internal landing line.

[VISUAL BLUEPRINT: Male Pipe Alignment to Female Socket with O-Ring Target Arrow]

STEP 1.2: Hydraulic Tool Positioning & Jaw Crimping

Align the crimping jaw over the socket groove and squeeze until the bypass valve releases.

Place the annular jaws of the hydraulic clamping tool precisely over the protruding ring section containing the O-ring. Engage the hydraulic pump until the pressure cuts off, creating a permanent hexagonal mechanical lock.

[VISUAL BLUEPRINT: Hydraulic Tool Jaws Squeezing the Annular Ring Groove into Hexagonal Profile]

TYPE B: Threaded Jointing Connection (螺纹式)

STEP 2.1: Thread Pre-Cleaning & Gasket Fitting

Clean factory threads and install the sealing ring.

Wipe away sand, rust, or debris from both the male external threads and female internal couplings. Slip the protective rubber ring onto the thread shoulder.

[VISUAL BLUEPRINT: Thread Cleaning and Rubber Sealing Washer Placement]

STEP 2.2: Coupling Engagement & Pipe Wrench Tightening

Screw together by hand, then lock with a pipe wrench.

Thread the upper pipe coupling onto the lower pipe section by hand to prevent cross-threading. Utilize two pipe wrenches to torque the joint securely until the thread shoulders bottom out tightly.

[VISUAL BLUEPRINT: Dual Pipe Wrench Torque Application for Threaded Locking]

3. Rebar Cage Attachment & Wire Tie-Down Rules

Sonic logging tubes must be tied vertically to the interior framework of the rebar cage to survive concrete placement:

STEP 3.1: Parallel Rebar Lashing Layout

Lash tubes at 1.5-meter intervals using 16-gauge steel wire loops.

Fasten the pipe to the vertical rebar rails. Never weld the sonic tube directly to the structural rebar cage, as the welding arc will burn through thin-walled tubes. Always use wire tie-downs wrapped tightly in a figure-8 configuration.

[VISUAL BLUEPRINT: Figure-8 Galvanized Wire Tie Binding Tube Securely to Vertical Reinforcement Bars]

4. Water-Filling, Pressure Checks, and Bottom/Top Capping

Field Action Phase	Standard Field Requirements	Critical Quality Objectives
1. Bottom Tube Base Check	Pre-welded or factory-crimped water-tight bottom steel caps.	Prevents groundwater and wet concrete slurry from entering from the absolute base of the pile.
2. Clean Water Filling	Fill tubes with clean water immediately after securing to the rebar cage.	Acts as an internal counter-weight counter-pressure medium against concrete buoyancy forces.
3. Top Protective Capping	Seal top openings with temporary plastic push-fit caps or threaded plugs.	Prevents concrete splashes, structural debris, or site tools from falling inside during pouring.

 Critical Site Warning: Preventing Slurry Buoyancy & Probe Blockage

Never lower the rebar cage if water levels inside the tubes drop! If water levels drop, it indicates a compromised connection leak. If left uncorrected, cement slurry will enter the joint, flash-harden, and permanently block your ultrasonic loggers, requiring expensive dynamic core drilling to verify the pile.

Ordering CSL Tubes for a Major Foundation Substructure or Deep Bridge Piling Tender?

We supply a full range of high-performance hydraulic push-fit and threaded sonic logging tubes with pre-fitted EPDM gaskets and custom hydraulic crimping tooling packages.

Contact Our Field Engineering Division: HUDSON@CANGTIEPIPE.COM | WhatsApp: +86 19061773869

[Request Technical Datasheets & Container Pricing](#)